EXTRONICS®

CE

# Operating Manual

## iSCAN200

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# 1 Introduction

## 1.1 Brief Description

The iSCAN200 is a modern cordless scanner designed for use in hazardous areas. The iSCAN200 is energy efficient, with its high capacitance NiMH battery, as the scan procedure is ended when the scan button is released putting the unit in an automatic standby. This allows over 10,000 barcodes to be scanned before recharging.

The iSCAN200 has automatic recognition of all standard 1D barcodes.

The iSCAN200 is very robust and lightweight with rubber sheaths over both ends to protect against impact, making this unit suitable for use in a wide range of applications.

The iSCAN200 is easily programmable by scanning configuration barcodes to suit the needs of the user.

The iSCAN200 consists of a battery powered hand held laser scanner, base station and safe area charger for the scanner.

## 1.2 Items included

- iSCAN200 Scanner
- iSCAN200 Charger
- Belt / Wall Mount Holster
- Instruction Manual
- Programming Guide
- iSCAN200 Base Station (dependant on order)

# 2 Safety Information and Notes

## 2.1 Storage of this Manual

Keep this user manual safe and in the vicinity of the device. All persons who have to work on or with the device should be advised on where the manual is stored.

## 2.2 List of Notes

The notes supplied in this chapter provide information on the following.

- Danger / Warning.
  - Possible hazard to life or health.
- Caution
  - Possible damage to property.
- Important
  - Possible damage to enclosure, device or associated equipment.
- Information
  - Notes on the optimum use of the device

| | |
|---|---|
| **Warning!** | Battery replacement requires return of the barcode reader to Extronics Lt |

| | |
|---|---|
| **Important** | The ISCAN200 contains a Nickel-mH battery with a capacity of 730 mA/H and a life cycle 1000 uses |

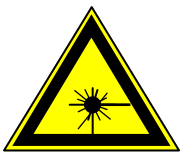
| | |
|---|---|
| **Important** | Do not incinerate |

| | |
|---|---|
| **Important** | Do not immerse in water or any other liquid |

| | |
|---|---|
| **Important** | The base station should be installed on a wall, ceiling or desk mounted |

| | |
|---|---|
| **Important** | Do not charge the ISCAN200 after exposing it to very low or high temperatures. It is recommended to charge the ISCAN200 at an ambient temperature between 0℃ and 50°C. |

| | |
|---|---|
| **Caution** | Do not assign the same identifier to two different barcode readers. |

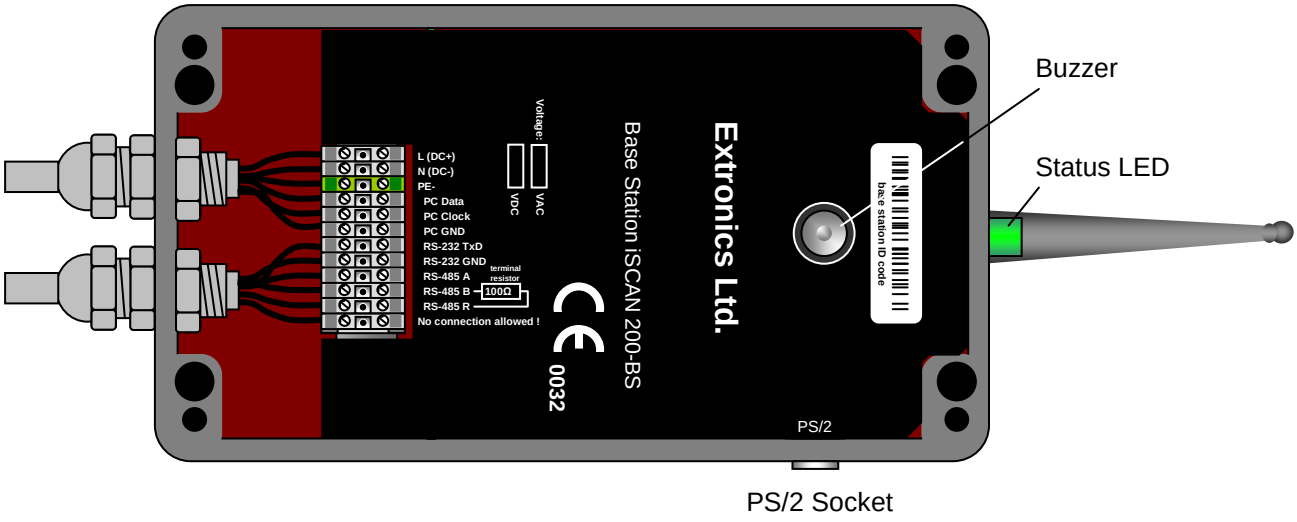


**Radiation from light emitting diodes.**
**Do not look into the beam.**
**Do not beam into eyes.**

**Light power ≤ 5 mW**
**Laser device class 3A**

# 3 Installation and Setting-to-Work

## 3.1 Installation of the Base Station




| | | |
|---|---|---|
| 1 | DC: + | AC: L |
| 2 | DC: - | AC: N |
| 3 | PE (protection earth) | |
| 4 | PS/2: Data | |
| 5 | PS/2: Clock | |
| 6 | PS/2: GND | |
| 7 | RS232: TxD (from BS-30... to PC) | |
| 8 | RS232: GND | |
| 9 | RS485: A | |
| 10 | RS485: B and one pin of the terminating resistor | |
| 11 | RS485: terminating resistor, connect with terminal 9 if needed | |
| 12 | No connection allowed! | |

### 3.1.1 PS/2 socket

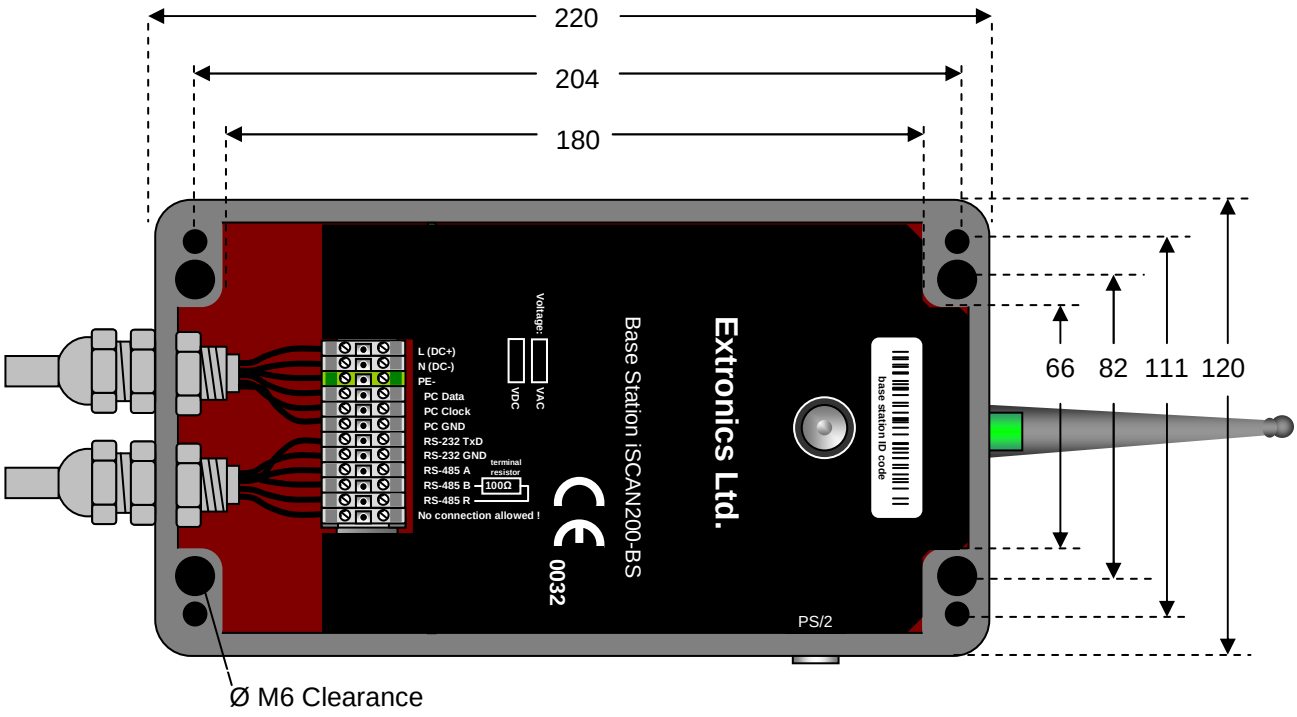
On request, a PS/2 socket can be wired in parallel with the PS/2 terminals of the base station. This is only for intrinsically safe keyboards that comply with the following vaules;

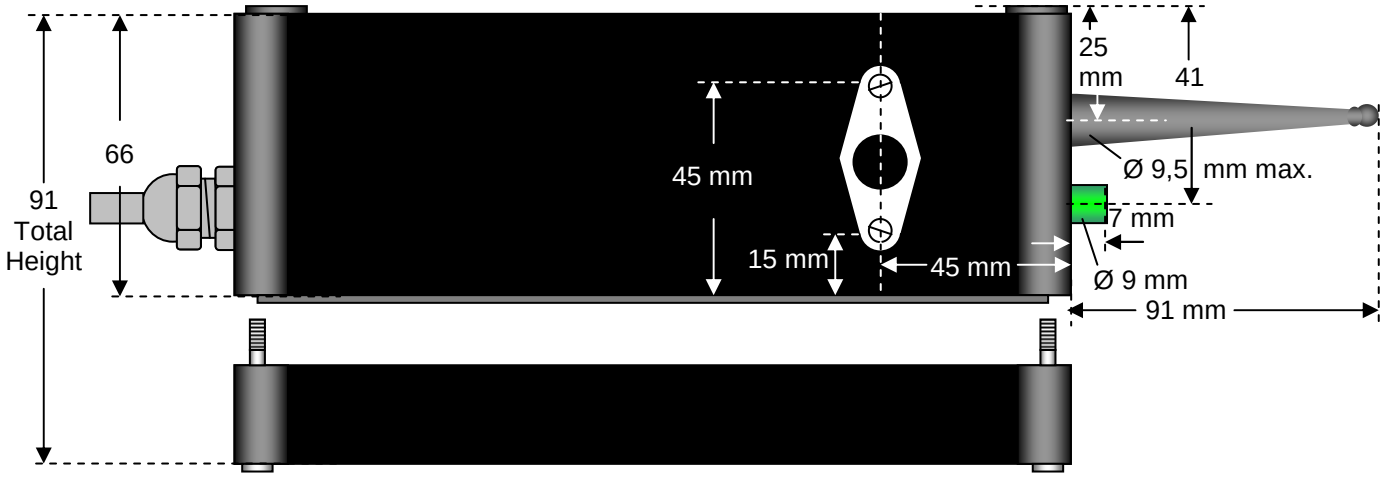
ΣPo = 0,86 W
ΣIo = 250 mA
Σ(Lo,Co): negligible
Uo = 5,36 V

| | |
|---|---|
| **Information** | **Please note, that the base station can be programmed either for PS/2 or RSXXX transmission, see "Programming Guide".** |

### 3.1.2 Base Station Dimensions

(Drawings are not to scale)




| | |
|---|---|
| **Important** | The antenna cannot be screwed off the base station |

| | |
|---|---|
| **Important** | Do not twist the antenna as this may cause damage to the unit. |

## 3.2 Connecting the iSCAN200

- Install and connect the iSCAN200 base station (see chapter 3.1).
- Register the iSCAN200 to the respective base station by scanning the bar code on the base station.
- Configure the iSCAN200 to the desired interface mode (see Chapter 3.3 - 3.4)

| | |
|---|---|
| **Important** | The Ex-protected base station only provides the terminals stated in chapter 3.1 |

| | |
|---|---|
| **Important** | If scanner and base station are configured to wait for an acknowledge signal from the PC, it could take several seconds for each scanning procedure. |

| | |
|---|---|
| **Information** | **I**f the scanner refuses registration to base station: Charge the battery completely. If this does not help: scan "End of configuration" from any configuration procedure. |

## 3.3 iSCAN200 - PS/2 configuration

Scan the following barcodes in turn to activate the PS/2 configuration
611=UK 11=US

START OF CONFIGURATION

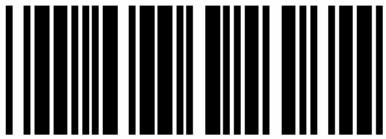
KEYBOARD WEDGE MODE ACTIVATED

6

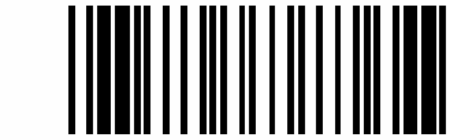
1

1

RETURN *



lower case



END OF CONFIGURATION

## 3.4 iSCAN200 - RS-232 / 485 configuration

To activate the RS-232 configuration of the scanner, scan the following bar code;

This activates the factory settings

| RS-232 / 485 Default Settings | |
|---|---|
| Baud rate | 9600 bps |
| Data bits | 7 |
| Parity | Even |
| Stop bits | 1 |
| End of scan signal | Carriage Return / Line Feed |

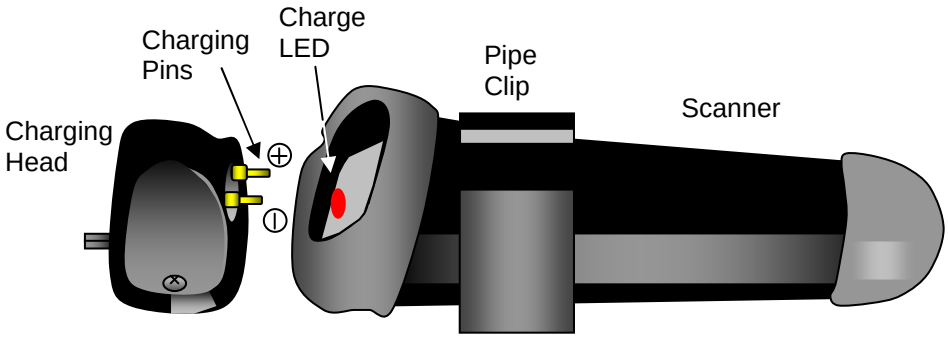
## 3.5 Charging the iSCAN200

The charging head may be fixed to the wall or desktop like in the figure shown below. It should then be mounted high enough that the charging LED is easily visible. Fix the scanner to the wall with a fitting pipe clip e.g.

Plug the charger into the mains supply and attach the iSCAN200 so that the laser window is facing away from the surface. The charging pins should lock into place in the scanners contacts. The scanner will confirm that it is charging by a momentary beep, the charge LED will be on continuously

The LED flashes at room temperature when the battery is charged about 70%. Do not leave the scanner in the charger eternally. Long time stand-by charging reduces the life time of the battery.

| | |
|---|---|
| **Warning!** | **Only attempt to charge the scanner using the charger provided with the unit. The charger contains special circuitry to protect the integral EX components of the scanner** |




### 3.5.1 Approximate Charging Times

(At room temperature)

| Hours | Charge ( % ) |
|---|---|
| 1.25 | 25 |
| 4 | 50 |
| 8 | 100 |

### 3.5.2 Self Dis-charging

The iSCAN200 self dis-charges approximately 40 % after one month at 20℃

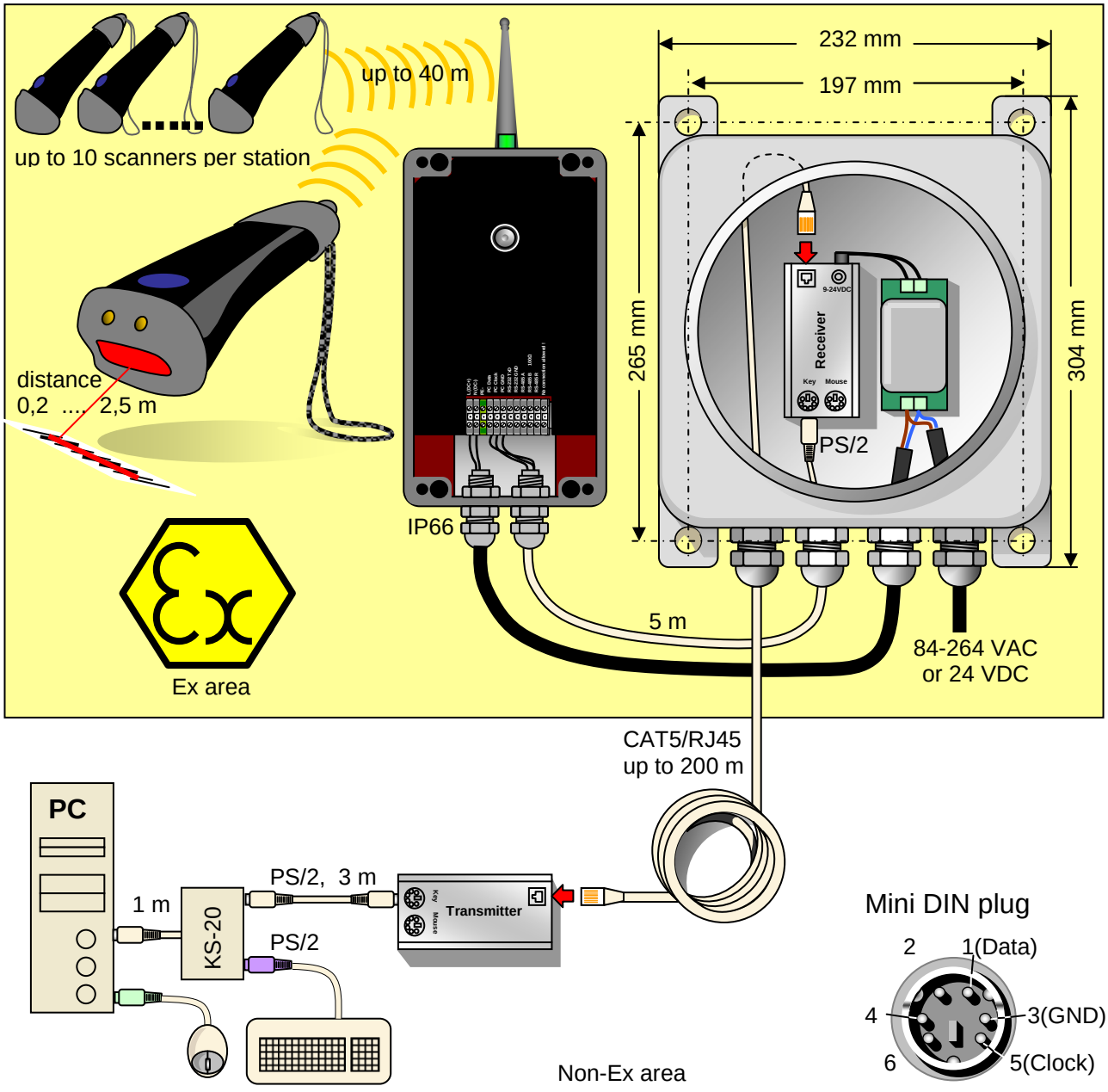
### 3.5.3 Multi-way Stainless Steel Charging Station

Extronics can provide a safe area charging station for multiple iSCAN200's. This consists of a power supply connected in parallel with multiple charging docks to allow for a space-saving, convenient installation.

## 3.6 Compatible Barcodes

| | | |
|---|---|---|
| Ames | Delta distance A | Standard 2 out of 5 |
| BC-412 (on request) | EAN 128 | TELEPEN |
| Codabar | IATA | UPC / EAN |
| Codablock A and F | Interleaved 2 out of 5 | 2/5 Matrix |
| Code 11 | Label code 4/5 | 3W7 |
| Code 39 | MSI | |
| Code 93 | PHARMA 32/39 | |
| Code 128 | Plessey | |

## 3.7 Long Distance Transmission




**For ordering information, please contact Extronics Ltd**

**Components included:**
PS/2 transmitter
PS/2 receiver including power supply for 84 - 264 VAC or 24 VDC in EEx d enclosure
PS/2 cable 5 m with flying leads (from receiver to base station BS-300)
PS/2 cable 5 m (from transmitter to keyboard wedge KS-20)
Keyboard wedge KS-20

**Sending PS/2 data to a distant PC**
Insert bar codes as PS/2 data from the Ex area into the safe area directly into your text application. The iSCAN in the figure above works simply like a second keyboard.

# 4 Intended Purpose Usage

| | |
|---|---|
| **Important** | **Before setting the units to work, read the technical documentation carefully.** |

| | |
|---|---|
| **Important** | **The latest version of the technical documentation or the corresponding technical supplements is valid in each case.** |

The iSCAN200 is built using modern components and is extremely reliable in operation; however it must only be used for its intended purpose. Please note that the intended purpose also includes compliance with the instructions issued by the manufacturer for installation, setting up and service.
Any other use is regarded as conflicting with the intended purpose. The manufacturer is not liable for any subsequent damage resulting from such inadmissible use. The user bears the sole risk in such cases.

## 4.1 Transportation and Storage

All iSCAN200 devices must be so transported and stored that they are not subjected to any excessive mechanical stresses.

## 4.2 Authorized Persons

Only persons trained for the purpose are authorized to handle the iSCAN200; they must be familiar with the unit and must be aware of the regulation and provisions required for explosion protection as well as the relevant accident prevention regulations.

## 4.3 Cleaning and Maintenance

The iSCAN200 and all its components require no maintenance. All work on the iSCAN200 by personnel who are not expressly qualified for such activities will cause the Ex approval and the guarantee to become void.

You may clean the scanner and the base station lamp with a damp cloth or a brush. Clean the laser window of the scanner from time to time with a very soft cloth. No cleaning inside of the Ex area because of potential charging of the cleaning tool.

## 4.4 Safety Precautions

| | |
|---|---|
| **Important** | **For the installation, maintenance and cleaning of the units, it is absolutely necessary to observe the applicable regulations and provisions concerned with explosion protection (EN 50014, EN 60079-14:2003) as well as the Accident Prevention Regulations.** |

## 4.5 Cleaning and Maintenance Intervals

The cleaning intervals depend on the environment where the system is installed.

## 4.6 Aggressive substances and environments

The iSCAN200 is not designed to come into contact with aggressive substances or environments, please be aware that additional protection may be required.

## 4.7 Exposure to external stresses

The iSCAN200 is not designed to be subjected to excessive stresses e.g. vibration, heat, impact. Additional protection is required to protect against these external stresses.

The iSCAN200 will require additional protection if it is installed in a location where it may be subjected to damage.

# 5 Technical Data

## 5.1 iSCAN200

| | |
|---|---|
| **Certification Number** | TUV 04 ATEX 2640 |
| **Certification Type** | Ex II 2G EEx ia IIC T4. |
| **Dimensions** | 192x56x49mm. |
| **IP Rating** | IP65 |
| **Ambient Operating Temperature** | -30°C to +50°C |
| **Weight** | 170g |
| **Material** | Polycarbonate. |
| **Power Supply** | Scanner:- NiMh Battery. |
| **Interface** | PS2, RS232 & RS485 |
| **Barcode Compatibility** | Auto discriminates all standard bar codes. For other Symbologies please call Extronics. |
| **Scanning System** | Visible Laser Diode (VLD Standard Range: 670nm Long Range:650nm |
| **Scanning Range** | Up to 1.01m (barcode dependant) |

## 5.2 Base Station

| | |
|---|---|
| **Certification Number** | TUV 04 ATEX 2641 |
| **Certification Type** | Ex II 2G EEx em [ia] IIC T4<br>And ; Ex II 2D T95/70/60°C IP66 |
| **Dimensions** | 220x120x92mm |
| **IP Rating** | IP66 |
| **Ambient Operating Temperature** | -30°C to +50°C |
| **Weight** | 2.500g |
| **Material** | GFK-Polyester |
| **Power Supply** | 115/230/250 VAC, 24VDC max 100mA |
| **Interface** | PS2, RS232 & RS485 |
| **Barcode Compatibility** | Auto discriminates all standard bar codes. For other Symbologies please call Extronics. |

# 6 Type Codes

| | |
|---|---|
| **Barcode Scanner System** | |
| **(c/w: Ex Scanner, Ex RS232 or RS485 Base Station, Non Ex charging cradle)** | |
| Intrinsically Safe Cordless Barcode Scanner System 230VAC | **iSCAN200S230VAC** |
| Intrinsically Safe Cordless Barcode Scanner System 115VAC | **iSCAN200S115VAC** |
| Intrinsically Safe Cordless Barcode Scanner System 24VDC | **iSCAN200S24VDC** |
| **Barcode Scanner** | |
| Intrinsically Safe Cordless Barcode Scanner | **iSCAN200** |
| **Base Station Options** | |
| Intrinsically Safe Cordless Barcode Scanner Base Station 230VAC | **iSCAN200B230VAC** |
| Intrinsically Safe Cordless Barcode Scanner Base Station 115VAC | **iSCAN200B115VAC** |
| Intrinsically Safe Cordless Barcode Scanner Base Station 24VDC | **iSCAN200B24VDC** |
| **Non Ex Charging Stations** | |
| Non Ex Charging station for iSCAN200 230VAC | **iSCAN200CVAC** |
| Optional Multiway 3 Position charging rack available | **iSCAN200CS** |
| Additional Bays for the iSCAN200CS. Each additional bay accommodates 1 scanner | **iSCAN200CSA** |

# 7 Certification

(1) **EC-TYPE EXAMINATION CERTIFICATE**

TÜV NORD

(2) Equipment and protective systems intended for use in potentially explosive atmospheres - **Directive 94/9/EC**

(3) EC-Type Examination Certificate Number

**TÜV 04 ATEX 2640**

(4) Equipment: Bar code laser scanner type iSCAN 200-*

(5) Manufacturer: EXTRONICS LIMITED

(6) Address: Meridian House, Roe Street, Congleton, Cheshire CW12 1PG, UK

(7) This equipment or protective system and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH & Co. KG, TÜV CERT-Certification Body, notified body number N° 0032 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential report N° 04 YEX 551721 C.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 50014:1997+A1+A2** **EN 50020:2002**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type examination certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment or protective system must include the following:

**Ex II 2 G EEx ia IIC T4**

**TÜV NORD CERT GmbH & Co. KG**
**Am TÜV 1**
**30519 Hannover**
**Tel.: 0511 986-1470**
**Fax: 0511 986-2555**

**Hannover, 2005-05-17**

**Head of the Certification Body**

**This certificate may only be reproduced without any change, schedule included. Excerpts or changes shall be allowed by the TÜV NORD CERT GmbH & Co. KG**

**Seite 1/2**

(13) **SCHEDULE**

(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 04 ATEX 2640**

(15) Description of equipment

The bar code laser scanner type iSCAN 200-* may be operated in hazardous explosive areas that require apparatus of category 2 resp. 3.

Replacement and charging of the accumulator has to be carried out outside of the hazardous explosive area.

The data transmission is wireless.

The permissible ambient temperature range is -30 °C to +50 °C.

The HF power is 10 mW.

Electrical data

| | |
|---|---|
| Supply | 3 NiMH cells, type Twicell HR-AAAU, manufacturer Sanyo |
| (internal accumulator) | U = 4.2 V; 730 mAh |
| Charging contacts | only for the connection with the associated charger outside of hazardous areas |

(16) Test documents are listed in the test report N° 04 YEX 551721 C.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones

BA 02 01.05 1.000.000

TÜV NORD

(1) **EC-TYPE EXAMINATION CERTIFICATE**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres - **Directive 94/9/EC**

(3) EC-Type Examination Certificate Number

## TÜV 04 ATEX 2641

(4) Equipment: Base station type iSCAN 200-BS*

(5) Manufacturer: EXTRONICS LIMITED

(6) Address: Meridian House, Roe Street, Congleton, Cheshire CW12 1PG, UK

(7) This equipment or protective system and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH & Co. KG, TÜV CERT-Certification Body, notified body number N° 0032 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential report N° 04 YEX 551721 D.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 50014:1997+A1+A2 EN 50019:2000 EN 50020:2002 EN 50028:1987 EN 50281-1-1:1998+A1**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type examination certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment or protective system must include the following:

**Ex II 2 G EEx em [ia] IIC T4 bzw. II 2 D T 95/70/60 °C IP 66**

**TÜV NORD CERT GmbH & Co. KG**
**Am TÜV 1**
**30519 Hannover**
**Tel.: 0511 986-1470**
**Fax: 0511 986-2555**

**Hannover, 2005-05-17**

**Head of the Certification Body**

CERT A4 | VU-H | 02.05 | 9000 | dia

**Seite 1/2**

(13) **SCHEDULE**

(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 04 ATEX 2641**

(15) Description of equipment

The base station type iSCAN 200-BS* may be operated in hazardous explosive areas that require apparatus of category 2 resp. 3.

The permissible ambient temperature range is -30 °C to +50 °C for the types intended for the use in explosive gas atmospheres and -30 °C to 40 °C for the types for the use in areas with the presence of combustible dust.

The electronics is partly realized in encapsulation. Non-intrinsically safe circuits are connectable in Increased Safety.

Electrical Data

| | |
|---|---|
| Supply<br>(terminals 1 to 3) | U = 12 resp. 24 VDC, I = 100 mA or<br>U = 24, 115, 230 resp. 250 VAC. depending on the type<br>$U_m$ = 253 V |
| RS-232 interface<br>(terminals 7 and 8) | U = ±10 VDC<br>$U_m$ = 253 V |
| RS-485 interface<br>(terminals 9 to 11) | U = 5 VDC<br>$U_m$ = 253 V |
| PS/2 interface from the PC<br>(terminals 4 to 6) | U = 5 VDC<br>$U_m$ = 253 V |
| PS/2 interface to the keyboard<br>(socket) | in type of protection Intrinsic Safety EEx ia IIC<br>Maximum values: $U_o$ = 5.36 V<br>$\sum I_o$ = 250 mA<br>$\sum P_o$ = 0.86 W<br>max. permissible outer capacitance 65 µF<br>max. permissible outer inductance 0.25 mH |

Light-emitting diode and buzzer are operated via internal intrinsically safe circuits.

(16) Test documents are listed in the test report N° 04 YEX 551721 D.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones

BA 02 01.05 1.000.003

# 8 EC Declaration of Conformity

Specialists for intrinsically safe & explosion proof equipment

**EC Declaration of Conformity**

**Extronics Ltd, Meridian House, Roe street, Congleton, CW12 1PG UK**

Declare under sole responsibility that the product;

**iSCAN200**

*To which this declaration relates is in accordance with the provision of the following directives*

**73/23/EEC** Low Voltage Directive (LVD)

**94/9/EC** Equipment Intended for Use in Potentially Explosive Atmospheres (Atex)

**98/336/EEC** Emission and Immunity Requirements on Electrical Products - EMC Directive

*And is in conformity with the following standards or other nominative documents*

| | |
|---|---|
| EN 50281-1-1 | Electrical apparatus for use in the presence of combustible dust. Electrical apparatus protected by enclosures. Construction and testing |
| EN 50028 | Electrical apparatus for potentially explosive atmospheres. Encapsulation 'm' |
| EN 50014 | Electrical apparatus for potentially explosive atmospheres. General requirements |
| EN 50020 | Electrical apparatus for potentially explosive atmospheres. Intrinsic safety 'i' |
| EN 50019 | Electrical apparatus for potentially explosive atmospheres. Increased safety 'e' |
| EN 60950 | Information technology equipment. Safety. General requirements |
| EN 60825-1 | Safety of laser products. Equipment classification, requirements and user's guide |
| EN 55022, Class B | Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement |
| EN 55024 | Information technology equipment. Immunity characteristics. Limits and methods of measurement |

Signed Date: 25/03/09

Nick Saunders
Technical Services Manager

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# 9 Manual Revision

| Revision | Description | Date | By |
|---|---|---|---|
| 1 | New Issue | 24/08/06 | AB |
| 2 | Manual Updated | 25/03/09 | JRE |